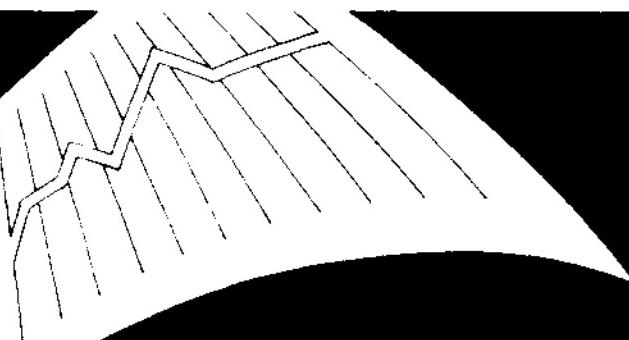


U.S. Air and Ground Conventional Forces for NATO: Overview

JANUARY 1978



BUDGET ISSUE PAPER FOR FISCAL YEAR 1979



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**U.S. AIR AND GROUND CONVENTIONAL FORCES FOR NATO:
OVERVIEW**

**The Congress of the United States
Congressional Budget Office**

PREFACE

As the Congress makes decisions on targets for the First Concurrent Resolution on the Budget for Fiscal Year 1979, the appropriate size of the defense budget will be one of the most important issues. The principal role of a large part of the U.S. air and ground forces is to participate with our allies in a defense of NATO Europe. Therefore, judgments about the requirements for that defense and the appropriate role of the United States in it will underlie Congressional budget decisions.

The series of papers on U.S. forces for NATO of which this is a part is intended to lay out the current U.S. role in NATO's defense, to relate the U.S. role to the contributions of the various NATO allies, and to present a set of alternative defense programs corresponding to different conceptions of appropriate changes in the U.S. role. The other papers in this series deal at greater length with issues in the areas of firepower, air defense, and logistics. A companion piece, Assessing the NATO/Warsaw Pact Military Balance, was published in December 1977. The series was undertaken at the request of the Senate Budget Committee.

This paper was prepared by Sheila K. Fifer of the National Security and International Affairs Division of the Congressional Budget Office, under the supervision of John E. Koehler. The author is indebted to Nancy J. Bearg, G. Philip Hughes, Marshall Hoyler, and Peggy L. Weeks, who wrote the papers which this Overview summarizes. The author also gratefully acknowledges the contributions of James R. Blaker, Carl R. Neu, Alice C. Maroni, Daniel F. Huck, and John B. Shewmaker of the National Security Division. Cost analysis was provided by Edward A. Swoboda of CBO's Budget Analysis Division. The manuscript was edited by Patricia H. Johnston and prepared for publication by Nancy J. Swope. In accordance with CBO's mandate to provide objective analysis, this paper offers no recommendations.

Alice M. Rivlin
Director

January 1978

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SUMMARY

The costs of U.S. general purpose forces are principally the costs of participating with Western European allies in the defense of NATO. U.S. ground and tactical air forces--the subjects of this study--are designed primarily for use in a NATO war. Expenditures to modernize or expand those forces are made primarily to strengthen NATO. These U.S. forces, however, comprise only about one-fourth of the NATO forces in West Germany. The strength of NATO defenses depends less on the capabilities of the U.S. forces than it does on the capabilities of the remaining three-quarters of ground and air forces which are provided by Western European allies. How well these allied forces are armed largely determines not only the strength of NATO, but also the effectiveness of further improvements in U.S. forces.

Most Western European forces are not as well provided as U.S. forces with critical weapons, equipment, and supplies. Compared with those of the United States, allied forces appear to be less able to counter improved Soviet ground and air forces or to sustain combat in the face of a very intense Warsaw Pact attack. Although Western European governments have procurement plans to strengthen their capabilities, it does not seem likely that these improvements will remove the basic discrepancies between U.S. and allied forces. Such discrepancies present a major problem for NATO defense; they also present the most difficult kind of problem for expenditures on U.S. NATO forces to correct.

The quality of allied forces is critical to NATO defense because the alliance's organization gives them important and largely independent roles to perform. Most of NATO's deployed ground and air forces are aligned along the West German border. Not only the United States, but also England, Belgium, the Netherlands, and West Germany maintain forces along that border (see map). Each of these national armies is stationed in and is responsible for defending a separate sector in what would become the central front of a European war. While the Warsaw Pact could direct its major attack against any portion of the border, the most favorable geography for an invasion is in the northern region of Germany. This region is relatively open and would provide a direct line of march to major Western European cities. It is also the area in which Western European forces are positioned

Corps Sectors of Military Responsibility in NATO's Central Region



SOURCE: Adapted from Richard Lawrence and Jeffrey Record, *U.S. Force Structure in NATO* (Washington, D.C.: The Brookings Institution, 1974), p. 31 and also from U.S. Army materials.

^{a/} NORTHAG (Northern Army Group) and CENTAG (Central Army Group) are the two subdivisions of NATO forces in West Germany. The line dividing the two runs from Belgium through West Germany, just south of Bonn, and into East Germany.

and, consequently, the area in which NATO's defenses are weakest. U.S. forces are stationed in southern Germany, where geography would make a major Warsaw Pact attack less likely and where force improvements would seem less important for NATO's overall posture.

The United States has, however, been making substantial improvements in its NATO forces, and further major improvements are planned. Over the past three years, real procurement costs of major weapons and items of equipment for these forces have risen at an average annual rate of 22.8 percent. Since fiscal year 1974, the Army has expanded the number of its active divisions from 13 to 16 and has also begun extensive modernization programs for this enlarged force. Programs are now underway to replace current inventories with more sophisticated systems and greatly to increase the inventories of weapons and ammunition. The trend, then, is towards both more ground forces for NATO and more expensive units. For the air forces, there is a similar trend toward more wings and more modern aircraft to replace existing fighters. Unless the Congress decided to reverse the direction of Administration policy, expenditures in these areas would continue to increase.

In order to carry out this expansion and modernization of NATO ground and air forces, the Defense Department has programmed new procurement for major items of equipment in fiscal year 1979 that would require a 16 percent real increase over expenditures in fiscal year 1978. The Congress could, however, approve only selected portions of the programmed modernization and expansion programs; there is a considerable range of choice concerning which aspects of ground and air forces could be improved and how great an increase in defense spending could be incurred.

In making these choices, the Congress may wish to take into consideration the Administration's commitment to a minimum of 3 percent real growth in defense expenditures. Along with other NATO members, the United States has agreed to increase defense spending in order to strengthen alliance defenses. It is a matter of interpretation, however, whether this agreement applies to the entire defense budget or only to that portion of the budget associated with conventional forces for NATO. The Congress has choices, then, not only of whether or not to support this policy, but also whether to interpret it as requiring a moderate or quite substantial increase in U.S. defense spending.

The range of choice available to the Congress is illustrated by the three options presented in the following table. These

COSTS OF U.S. PARTICIPATION IN NATO DEFENSE--CHANGES TO FISCAL YEARS 1978-1982 FIVE-YEAR DEFENSE PROGRAM: BY FISCAL YEAR, IN BILLIONS OF CURRENT YEAR DOLLARS

	1979	1980	1981	1982	1983
Baseline (DoD Program)	134.3	144.7	155.6	165.7	176.5
Option I Building Forces to Augment Allied Defenses	-0.1	-0.9	-1.4	-2.0	-0.2
Option II Building Forces to Reinforce Allied Corps Sectors	1.0	1.4	1.6	2.5	1.8
Option III Modernizing Smaller U.S. NATO Forces	-1.6	-3.1	-5.1	-6.7	-4.8

options, which deal only with ground and air conventional forces, depict procurement packages that would represent moderate, substantial, or no real growth within these selected areas. Equally important, these options illustrate different courses which, given the discrepancies between U.S. and allied forces, the Congress may wish to consider for modernizing and maintaining U.S. NATO forces. The first option would provide for a moderate increase--below that programmed by the Defense Department--in procurement spending on ground and air forces. This option would not only proceed with the basic program for modernizing U.S. forces, but would also approve additional air defense aircraft and war reserve supplies which could be used to augment allied defenses. The second option would involve a substantially greater increase in procurement spending above that programmed by the Defense Department. This course would not only modernize U.S. ground and air forces, but

would also significantly increase capabilities for providing rapid reinforcements to allied armies. A third option offers an alternative for substantially reducing the expenditures planned by the Defense Department and for reversing the trend of recent years for sharply increased procurement spending for NATO ground and air forces. This option would permit continued modernization but would reduce recent additions to ground forces and would limit planned expansions of air forces. A choice among these options is a matter not only of defense costs, but also of U.S. policy towards the alliance.

OPTION I. BUILDING FORCES TO AUGMENT ALLIED DEFENSES

The Congress may wish to approve a defense budget with a moderate real increase in procurement for U.S. ground and air forces. The most effective use of such increased spending would appear to be for the acquisition of additional aircraft and supplies for U.S. forces in Germany. These assets could be used for the defense not only of U.S. sectors, but also of allied sectors. This would primarily mean increased procurement of aircraft, which could be distributed by the Commander of Allied Air Forces Central Europe to assist allied forces, and ammunition, which could be provided to allied armies. Total expenditures would be roughly \$3.6 billion in fiscal year 1978 dollars below those programmed by the Defense Department. A set of budget decisions that would be consistent with this policy would include:

- o Approving funds for two additional wings each of F-16 fighter and A-10 close air support aircraft, and also for additional base facilities in Europe.
- o Procuring additional interoperable ammunition and other war reserve materiel that could be provided to allied forces as their supplies were expended.
- o Denying funds for ATCA and AMST transport aircraft.

A major difficulty with this option could be that it emphasizes the substitution of mobile assets, which can be diverted from U.S. forces, for ground-based assets, in which the allied sectors are relatively weak. While U.S. mobile equipment can help to offset these weaknesses, the substitution cannot be complete. Each kind of weapon--fighters or missiles, tanks or close air support aircraft--has distinct capabilities, and building an

excess of one against a deficiency of another might not achieve an equal capability for equal costs. Aircraft are, for example, much more restricted by weather conditions than are ground weapons. The effective use of these flexible U.S. assets would, moreover, depend upon a degree of NATO command coordination that, although existing in formal alliance planning, might not be available under wartime conditions. Also, while these additional U.S. resources could be used to help strengthen NATO defenses in northern Germany, major improvement of the overall NATO defense structure would still rely primarily upon the initiatives of the Western European governments whose forces are stationed there.

OPTION II. BUILDING FORCES TO REINFORCE ALLIED CORPS SECTORS

If the Congress is willing to approve substantially greater increases in defense costs, then the United States can attempt to strengthen NATO defenses by expanding its reinforcement capabilities. The greatest expansion of the U.S. role in NATO defense and the greatest increase in U.S. defense costs are associated with building reinforcement capabilities. The most certain and direct improvements in the overall NATO posture could be attained by providing additional U.S. divisions for deployment to support allied sectors in northern Germany. Given this objective, the equivalent of the three divisions recently added to U.S. ground forces could be allocated for NORTHAG reinforcement. Because they are recent additions to the force structure, this commitment could presumably be made without degrading capabilities for reinforcing U.S. corps in southern Germany or for U.S. commitments elsewhere. In order for these divisions to be available in Europe from the beginning of hostilities, their weapons and equipment would be prepositioned in northern Europe, to the rear of the allied corps they would reinforce. Furthermore, to ensure that these forces would have sufficient facilities for central command and support, a U.S. corps headquarters would also be located in northern Germany. While establishing such a headquarters in the north would not involve great expenses, it would represent a very visible enlargement of the U.S. role in NATO.

Overall, this option would add at least \$6.5 billion to the expenditures programmed by the Department of Defense. The major identifiable expenditures would include:

- o Approving funds for accelerated production of the XM-1 tank.
- o Providing funds for the construction and maintenance of three centers for prepositioned weapons in northern Europe, and also for such additional procurement as may be needed for weapons and equipment to stock these centers.
- o Approving increased procurement for ammunition and other war reserves to support the three additional divisions that would be deployed in Europe from the beginning of the war, and providing funds for additional facilities to store war reserve supplies in Europe for these forces. (Because of constraints on how quickly war reserves could be purchased and on how quickly additional storage sites in Europe could be acquired, further expenditures would be required beyond the five-year period.)
- o Providing funds for one additional wing of F-16 fighters and approving programmed production for the F-15 fighter and the A-10 close air support aircraft.
- o Approving ATCA and CRAF expansion of strategic airlift programs to accelerate the deployment of U.S.-based divisions which do not have prepositioned equipment, and approving full production of the UTAS cargo helicopter and the AMST for intra-theater airlift.

Several reservations can be raised against this course. It would be expensive and would involve uncertainties about Western European responses. First, in so expanding its role in the defense of Europe, the United States could be providing a disincentive to Europeans to make improvements in their own forces. If so, not only would NATO suffer from reduced efforts of European allies to improve their own forces, but the United States might also find it very difficult to reverse the course of continually building its NATO forces to compensate for weaknesses in allied forces. Second, allied consent has not been obtained for the sites and installations necessary under this option. Approval of these large defense expenditures before arrangements have been made for carrying out the expansion of U.S. participation in NATO defense might, therefore, be premature.

OPTION III. MODERNIZING SMALLER U.S. NATO FORCES

The Congress may, for a number of reasons, prefer to reverse the trend toward increased spending on U.S. NATO forces. This position could be associated with a desire to control U.S. defense costs until allied governments have improved their forces. It could also reflect a preference for directing increases in U.S. defense spending to capabilities for contingencies other than a European engagement, or a preference for directing increases in the U.S. budget to nondefense accounts. This position could also be adopted on the grounds that the other alternatives are unacceptable—that, under the present circumstances, small increases in U.S. forces such as proposed in Option I are too little to be effective and that large increases, while probably more effective, are too costly to be acceptable. In that case, the Congress may prefer to restrict further increases until progress has been made in institutional reforms in NATO that would permit a viable middle ground. Restricting expenditures on U.S. ground and air forces, however, would require reversing recent trends toward force expansions and increased weapons and supply requirements per unit.

Assuming that U.S. force modernizations were continued, one measure that could quickly reduce overall defense costs would be to delete the three divisions that have been added to U.S. ground forces since fiscal year 1974. These divisions might have little value during the early period of a NATO war—the phase which most planning now emphasizes as critical to the outcome of the war. For without prepositioning more equipment in Europe, the increase in overall NATO strength represented by the new divisions might occur too late to make a difference. Thus, if the Congress does not wish to approve prepositioning additional equipment, it should also look seriously at the necessity of maintaining 16 active Army divisions.

This option would delete these divisions, approve procurement for only the remaining 21 active and reserve divisions of the Army ground forces, and hold aircraft and support acquisitions to levels that would maintain but not expand the U.S. presence in Europe. These policies would result in substantial savings compared to the Defense Department's program—approximately \$16.8 billion over the next five years. Budget actions consistent with this approach would include:

- Deleting the three recently added active divisions from U.S. ground forces.

- o Approving procurement of the XM-1 tank, and reducing purchases of ammunition and other war reserve supplies to levels appropriate to the smaller force structure.
- o Reducing production of F-15 and F-16 fighter aircraft to provide a total of five F-15 wings and eleven F-16 wings—that is, one wing each below current plans.
- o Approving procurement of the UTTAS transport helicopter in reduced proportions appropriate to the smaller force structure, but approving no other new procurement of strategic or intra-theater airlift.

This option offers a means for the United States to avoid further increases in its NATO forces and thus in the costs of its participation in NATO. What this policy does not offer, however, is assurances that overall NATO defense would, in fact, be strengthened significantly. Although U.S. forces would themselves be improved, they would not acquire substantially greater capabilities for supplementing or reinforcing allied defenses. Under this option, the United States, as one member of the NATO alliance, would not try unilaterally to strengthen NATO defense but would leave the initiative to the Western European governments, whose forces now contain the most serious weaknesses in NATO's defenses. There is, of course, no way to ensure that force improvement initiatives by the allies would result from this restraint in U.S. spending. If they did not, the current imbalance between NORTHAG and CENTAG would persist.

CHAPTER I. INTRODUCTION: U.S. CONVENTIONAL FORCES AND U.S.
PARTICIPATION IN NATO

The United States builds and maintains its conventional forces principally for the defense of NATO. Major improvements in U.S. conventional forces--such as those which the Congress will consider in the fiscal year 1979 defense budget--are designed primarily to strengthen NATO. NATO is, however, defended not only by U.S. forces, but also by the armies of Western European allies; they provide three-quarters of the ground and air forces in NATO's Central Region. At present, the greatest relative weaknesses in NATO's overall defenses are not in U.S. forces, but in these Western European armies. In critical weapons, equipment, and supplies, the forces of most Western European allies are not as well armed as U.S. forces. For NATO as a whole, the most important improvements would be those that would bring Western European forces to equivalent capabilities with U.S. forces.

The United States, as one member of the alliance, could respond to this problem in several ways. The United States could choose to modernize and maintain its basic NATO forces, but delay any major additions until the Western Europeans have determined what improvements they will make in their forces. Under this policy, major savings could be achieved by reducing programmed expenditures for equipping expanded U.S. ground and air forces. If the United States preferred instead to take immediate steps to strengthen NATO unilaterally, then the most effective measures would appear to involve a substantial enlargement of U.S. reinforcement capabilities. This policy would provide additional U.S. ground forces that could be rapidly deployed in support of allied forces. It would also mean continuing sharp increases--above those currently programmed--in the costs of conventional forces, as well as a clear expansion of U.S. responsibilities in NATO defense. An intermediate and less costly policy would be to acquire additional air defense and support resources which could be used to supplement allied forces. This policy would mean much smaller cost increases--below those currently programmed--and a less visible expansion of U.S. responsibilities relative to those of the NATO allies. The basic question, however, is whether the United States should now begin major improvements to expand either its ground or air forces or whether it should simply maintain

and modernize them. The choice is not only a matter of defense costs, but also one of U.S. policy towards the alliance.

This choice is in large part dictated by the structure of NATO's defense. NATO is organized so that allied armies hold separate and critical responsibilities for the defense of Western Europe. Not only the United States, but also England, Belgium, the Netherlands, and West Germany maintain forces in West Germany to defend against a Warsaw Pact invasion from Eastern Europe. Each national army is stationed in and responsible for defending a designated sector along the German border (see map on p. 10). 1/ While the Warsaw Pact could direct an attack against any portion of the border, the most favorable geographic conditions are in the northern region of the German border. This is the area in which Western European forces are positioned--the area in which NATO's defenses are weakest. U.S. forces are stationed in southern Germany, where a major attack seems least likely, where NATO's defenses are strongest, and where force improvements would appear to be least valuable.

Within this NATO defense structure, U.S. ground and air forces perform at least three basic roles. U.S. forces stationed in Germany are responsible for defending their assigned sectors in southern Germany. These forces, however, also possess resources--aircraft and war reserve supplies--that could be provided as needed to allied armies. In this sense, U.S. forces augment the defenses of the allied sectors. Finally, forces stationed in the United States are the major source of NATO strategic reserves. U.S. divisions are available for deployment to whichever areas of the Central Region might be most in need of reinforcement. They could most easily be sent to southern Germany, where they could be integrated with U.S. corps headquarters and support systems. The discrepancies between U.S. and allied forces, however, make it more likely that they would be used in allied-defended sectors of northern Germany. U.S. NATO forces now perform and will continue to perform all of these roles in NATO defense. In deciding which aspects of U.S. NATO forces should receive priority in spending for modernization and expansion, the Congress can, however, express its preference for which of these roles should, under the present circumstances, receive the greatest emphasis in force improvements.

1/ Canada also maintains forces in West Germany, but it does not have a designated corps sector.

This question of which roles of U.S. NATO forces should be emphasized in force improvements has seldom been addressed in official defense planning. U.S. defense planning has focused not on the NATO alliance, but on the Warsaw Pact. The key questions in defining U.S. conventional force requirements have been: What kind of NATO war would be most likely, and what weapons and equipment would best serve U.S. forces in that war? The answers to these questions--which justify expenditures on these forces--have tended to treat only one aspect of that war: the Warsaw Pact attack. Thus, the suddenness, intensity, and duration of the predicted Warsaw Pact attack have been taken as the primary standards for justifying the kinds of forces the United States should maintain for NATO. 2/

While these factors are critical considerations in determining the weapons and equipment most valuable to U.S. forces, the nature of the attack describes only one aspect of the war in which these forces are designed to fight. The nature of allied defenses also determines the conditions under which U.S. forces would fight. How quickly, how intensely, and how long they would fight are equally important considerations in defining U.S. force requirements. The known strengths and weaknesses of Western European allies have, however, been given much more limited consideration in structuring U.S. forces than have the less certain attributes of a Warsaw Pact attack. Officially at least, U.S. NATO forces have been planned, and their funding requested from the Congress, with little explanation of why they were suited to the needs of the alliance or of what roles they were intended to serve in its defense.

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- 2/ For a full discussion of the relationship among assumptions concerning how the nature of the Warsaw Pact attack shapes force requirements, see the CBO fiscal year 1978 budget issue paper series, Planning U.S. General Purpose Forces. This series of papers included an Overview and four studies on individual forces: The Navy (GPO Stock No. 052-070-03826-8), Army Procurement Issues (GPO Stock No. 052-070-03834-9), The Tactical Air Forces (GPO Stock No. 052-070-03847-1), and The Theater Nuclear Forces (GPO Stock No. 052-070-03846-2). (Note: Only the Overview paper is available from CBO; the other four papers should be ordered from the Government Printing Office by the GPO stock numbers in parentheses after each paper.)

As background for Congressional consideration of the fiscal year 1979 budget, this study examines U.S. contributions to NATO defense in three major areas: firepower, air defense, and logistics. 3/ These categories cut across service lines, grouping together the capabilities which operate together to perform primary functions of ground and air forces. Firepower refers to capabilities for delivering heavy ammunition against enemy forces at the forward edge of battle. The size of ground forces and the numbers and range of their heavy weaponry, such as tanks and close air support aircraft, are among the factors that determine firepower capabilities. Air defense refers to ground-based and airborne systems that provide protection against enemy air power—those capabilities that shield ground forces and installations from air attack. Fighter aircraft, ground-based missiles, and anti-aircraft guns are important components of these capabilities. Logistics is used here as an umbrella term for the many elements that move, support, and sustain combat forces. These include mobility forces, supply systems, and stocks of reserve materiel.

Over the past several years, purchases of weapons and equipment in these areas have increased dramatically and have produced substantial real growth in procurement spending. The acquisition programs planned by the Defense Department would assure continued, sharp growth in these expenditures. As shown in Table 1, the total real increase between fiscal year 1976 and fiscal year 1978 in procurement in these areas was 60 percent. If the Defense Department program for fiscal year 1979 is approved as planned at the time of the fiscal year 1978 budget submission, the cumulative real increase in these areas since fiscal year 1976 would rise to 85 percent. 4/

In each of these areas, recent changes in technology, in Warsaw Pact capabilities, and in the methods used to determine force requirements have been used to support arguments that U.S. capabilities need further improvement. In firepower, Soviet

3/ This overview is drawn from three forthcoming CBO companion background papers in the U.S. Air and Ground Conventional Forces for NATO series: Firepower Issues, Air Defense Issues, and Logistics Issues. They should be consulted for a more detailed explanation of the issues within each area.

4/ See explanation of the Defense Department program on p. 27.

TABLE 1. EXPENDITURES ON PROCUREMENT FOR FIREPOWER, AIR DEFENSE, AND LOGISTICS: BY FISCAL YEARS, IN BILLIONS OF FISCAL YEAR 1978 DOLLARS a/

	1976	1977	1978	1979
Firepower	1.9	2.4	2.8	3.4
Air Defense	2.9	3.0	4.5	4.5
Logistics	0.6	1.0	1.3	2.1
Total	5.4	6.4	8.6	10.0
Percent change from fiscal year 1976 base	--	18.5%	59.2%	85.2%

SOURCE: CBO Budget Analysis Division calculations based on the fiscal year 1976 and 1977 actual programs, the fiscal year 1978 programs as appropriated by the Congress, and the 1979 projected programs.

a/ Includes only ammunition and major items of weapons and equipment.

modernization programs have raised concern that NATO equipment may, by comparison, be inadequate in quantity, range, and maneuverability. Improved tanks, armored personnel carriers, and close air support aircraft have been developed to replace current alliance equipment. Warsaw Pact capabilities for air attacks have also changed in recent years; the Soviet Union and its allies now possess more attack aircraft with greater range and payloads. More sophisticated surface-to-air missiles, anti-aircraft guns, and fighter aircraft have been justified as necessary to offset Warsaw Pact improvements. In logistics, NATO planning requirements have recently given emphasis to capabilities for responding very quickly to a short-warning attack by Warsaw Pact forces and for withstanding very intense attacks. This focus has been associated with proposals for improving mobility forces--especially airlift--and for increasing supplies of expendable equipment and materiel.

Whether or not NATO is now "deficient" in any of these areas is a matter of judgment. Assessments concerning the NATO/Warsaw Pact balance--that is, which alliance would win a conventional conflict--must be largely matters of interpretation. 5/ The outcome of such a war would depend upon many unpredictable circumstances. Many such circumstances--weather and skill of military leaders, for example--cannot be affected directly by increases in defense spending. Equipment is, however, an area in which the level of defense spending can directly alter relative NATO and Warsaw Pact capabilities. But as discussed earlier, the relatively greater "deficiencies" in NATO armaments are not in U.S. forces, but in those of its Western European allies. To the extent that increased procurement spending and better armament are needed to improve NATO capabilities relative to those of the Warsaw Pact, the greatest needs are in West European forces. Whether or not the United States should, therefore, augment its role in NATO--and increase its costs of participating in NATO--to help offset the relative weaknesses of allied forces is the question before the Congress.

5/ For a full discussion of the determinants of NATO/Warsaw Pact balance assessments, see the companion budget issue paper, Assessing the NATO/Warsaw Pact Military Balance, Congressional Budget Office (December 1977).

CHAPTER II. NATO DEFENSE

The Congress will review the fiscal year 1979 defense budget against the background of an official NATO policy to improve alliance forces and a U.S. executive commitment to support that policy with increased defense spending. In May 1977, the United States agreed with other members of the alliance to seek to maintain an annual real increase in defense spending of at least 3 percent. ^{1/} Whether or not the Congress wishes to approve such increased spending and, if so, for what kinds of NATO forces are major issues to be addressed in the fiscal year 1979 defense budget. Those issues can best be understood in terms of the assumptions, organization, and forces that form alliance defense. Of these three elements, the most basic are the assumptions that shape and justify NATO's conventional defenses.

NATO DEFENSE ASSUMPTIONS

NATO's defenses are built and maintained against assumptions about what kind of war would be most likely to occur and what kind of forces would be most likely to deter or to win that war. After 30 years of peace in Europe, such assumptions are necessary for logical discussion and planning of alliance forces. After 30 years of peace, these assumptions are also necessarily arbitrary and formalistic. Some elements--such as the presumed warning time before an attack, the intensity of the attack, and the duration of the war--are periodically revised as new weapons technology and methods for analyzing modern warfare are developed. Information gathered from the Middle East war of 1973 has, for example, been used to revise U.S. assumptions about what capabilities would be required to defend against a very intense attack. Similar revisions in NATO alliance standards for supply requirements are now also under consideration.

^{1/} "Final Communique" of the NATO Defense Planning Committee in Ministerial Session, Brussels, May 17 and 18, 1977 (NATO Press Communique M-DPC-2(77)6), May 18, 1977.

Other, more basic assumptions have not been revised despite profound changes in the circumstances of modern warfare. The most important of these is the supposition that conventional warfare can still be planned and conducted apart from nuclear war. NATO planning assumes that a war in Europe would begin with a conventional attack, not a preemptive nuclear attack. This is contrary to the view held by some authorities that developments in nuclear capabilities have made an anachronism of preoccupation with a conventional war between NATO and the Warsaw Pact. Nevertheless, NATO's defense is based on the assumption that the first stages of a war in Europe would be conventional; that the stronger the alliance's conventional defenses, the greater the prospects of deterring that war; and that, if deterrence fails, the stronger the alliance's conventional defenses, the greater the prospects that a war would remain non-nuclear.

A less controversial set of assumptions concerns which side would begin a European war. NATO is a defensive alliance; throughout NATO planning, the presumption is that the Warsaw Pact would hold the initiative. It is assumed that the major attack would come in Germany and that the Warsaw Pact would have substantial flexibility in determining where the main concentration of its forces would be and where lesser concentrations would be directed to hold defenders in position. Although tactical nuclear weapons are intended to deter concentrations of enemy forces, NATO conventional planning again proceeds apart from nuclear considerations. It is presumed that the Warsaw Pact would be able to group its forces against NATO's most vulnerable areas. It is also assumed that the Warsaw Pact would be free to determine how intense and how long the assaults would be.

A major problem in organizing NATO's defenses is, then, arranging forces that could respond effectively regardless of where the Warsaw Pact attack was concentrated. Since the Warsaw Pact could strike any portion of the border, one area with substantially weaker defenses than the others would reduce the overall alliance posture. Ideally, NATO would maintain not only relatively evenly distributed resources, but also flexible assets and reinforcements that could be quickly deployed to whichever areas of the border might be most hard-pressed. These ideals of even and flexible defenses are, however, in direct conflict with NATO's basic organization: a collection of independent national armies with geographically allocated responsibilities.

THE NATIONAL CORPS SECTORS

The responsibilities of the national armies defending NATO's Central Region are allocated by sectors (see Figure 1). NATO's Central Region is divided into eight national corps areas. The northern half of the Central Front is organized into the Northern Army Group (NORTHAG). Eleven allied army divisions compose NORTHAG; Dutch, West German, British, and Belgian corps are stationed from north to south along the border, although all corps-assigned troops are not currently deployed on-line at the border. 2/ This northern area is considered to be the most important and vulnerable portion of NATO's defenses. The North German Plain, with its flat, open terrain and good east-to-west roads, is viewed as the most favorable area for a Warsaw Pact attack. Although northern Germany has become more heavily urbanized in recent years, it still has large expanses of open land with no urban construction to impede an invasion. Once in northern Germany, Pact forces would have relatively direct lines of march to the Rhine and major Western European cities.

The southern half of the Central Front is organized into the Central Army Group (CENTAG). CENTAG has four national corps--two German and two U.S.--which together comprise the equivalent of 13-2/3 divisions. 3/ CENTAG's terrain is more favorable to defense than is NORTHAG's. 4/ This is largely a mountainous and wooded border area. 5/ Once in this area, Warsaw Pact forces would have a considerably longer and more difficult line of march

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- 2/ Canada maintains approximately 5,000 troops in CENTAG and is committed to provide reinforcements to NATO's northern flank.
 - 3/ Because France no longer belongs to NATO's military alliance, it is not included in this discussion of alliance forces. In the event that French troops did participate in a NATO war, however, they could be most easily deployed to CENTAG.
 - 4/ French forces are also stationed in the western portion of CENTAG, near the French-German border.
 - 5/ There are two narrow corridors that could be used for an invasion: the Fulda Gap and the Thuringer Mountain Hof area.

Figure 1.

Corps Sectors of Military Responsibility in NATO's Central Region



SOURCE: Adapted from Richard Lawrence and Jeffrey Record, *U.S. Force Structure in NATO* (Washington, D.C.: The Brookings Institution, 1974), p. 31 and also from U.S. Army materials.

a/ NORTHAG (Northern Army Group) and CENTAG (Central Army Group) are the two subdivisions of NATO forces in West Germany. The line dividing the two runs from Belgium through West Germany, just south of Bonn, and into East Germany.

to the Rhine. 6/ Scenarios used in studies of the Warsaw Pact threat to NATO and in alliance military exercises commonly assume a major enemy attack against the four allied corps in the north, with only a holding action against the U.S. and German corps in the south.

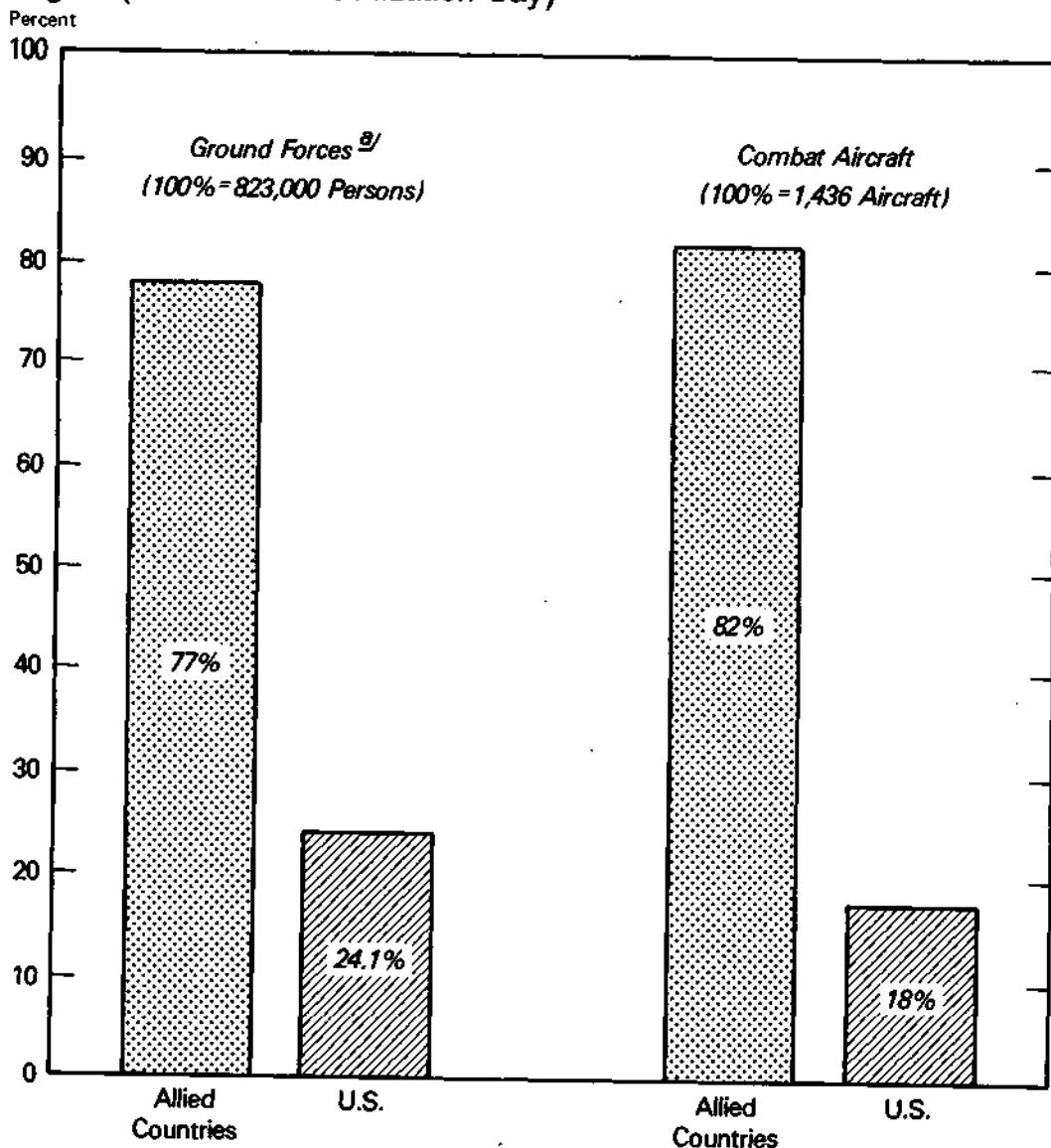
WESTERN EUROPEAN AND U.S. FORCES FOR THE CENTRAL REGION

Western European forces, then, hold most of the responsibility for defending the West German border--six of the eight corps sectors. They also hold most of the forces which are deployed or are planned to be deployed from the beginning of the war in the Central Region. Allied ground forces total roughly 600,000 men against 200,000 U.S. troops. Allied air forces have more than 1,000 aircraft compared to approximately 300 U.S. aircraft (see Figure 2). 7/ As can be seen from the allied order of battle (see Table 2), allied countries also maintain substantial additional active forces and reserves. Although many of these forces are not officially committed to the Central Region, they presumably would be used in a NATO war. 8/

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- 6/ For a more complete discussion of the disposition of forces on the Central Front, see Richard D. Lawrence and Jeffrey Record, U.S. Force Structure in NATO: An Alternative, Chapter III, "NATO and the U.S. Contribution to the Central Region's Defense" (Washington, D.C.: The Brookings Institution, 1974), pp. 28-44.
 - 7/ France, which withdrew from the military alliance in 1966 but still maintains forces which would presumably be used for the defense of CENTAG, is included in these counts. Unless otherwise indicated, all figures are from 1976 reports.
 - 8/ The Federal Republic of Germany maintains a large territorial and reserve force (see Table 2). Allied reserve forces have become increasingly important in recent years as Western European countries have moved more of their regular corps support troops into the reserves. The total number of available allied forces is approximately 1.4 million troops in active army and air force units, 3.6 million army reserves, and approximately 1,600 aircraft in their air forces. This compares with a total of 1.3 million troops in active U.S. Air Force and Army units, 739,000 Army and Air Force reserves, and 1,700 fighter and attack aircraft committed to NATO and stationed both in Europe and in the United States.

Figure 2.

Allied and U.S. Forces in NATO's Central Region (In Place at Mobilization Day)



SOURCE: Robert Lucas Fischer, *Defending the Central Front: the Balance of Forces*, Adelphi Paper 127 (London: International Institute for Strategic Studies, 1976), pp. 7, 32.

a/ These figures include both combat and support forces. French forces stationed in Germany are also counted.

The balance between Western European and U.S. forces shifts dramatically, however, when force capabilities are considered. In terms of number of weapons per unit, supplies of ammunition and other war reserves, and density and range of air defense systems, the capabilities of NATO's national armies vary greatly. They are, in fact, as diverse in their strengths and weaknesses as would be expected for armies planned, financed, and maintained by six independent governments with differing resources and differing priorities for defense spending. The important point for U.S. defense planning, however, is that by these same indicators of capabilities, U.S. forces in their sectors--the V and VII corps areas--appear to be significantly better armed than most allied forces defending the other corps areas.

In terms of firepower capabilities, the allies appear to have fewer weapons per unit and generally lower quality artillery and antitank guided missiles than do U.S. forces. The tank relied upon by most of the allies, the Leopard I, is considered roughly comparable to the M60 tank currently used by the United States. Allied forces other than the West German have fewer tanks per thousand troops than do U.S. forces. 9/ The allies currently have no attack helicopters similar to those of the United States. 10/

U.S. and allied air defenses differ both in ground-based systems and in aircraft. Most of the Western European allies have fewer in-depth, ground-based systems and rely for what deep coverage they do have far more upon anti-aircraft guns than upon missile systems. For allied sectors other than those defended by the Germans, who provide comparatively greater coverage, this appears to mean that the rear areas in NORTHAG are more vulnerable than those in CENTAG. Allied aircraft are somewhat less sophisticated than those of the United States; allied air forces depend largely upon the F-4 and F-104, while the U.S. Air Force is replacing its older fighters with the new F-15s. 11/ Allied forces also also have far fewer fighters; the U.S. Air Force provides more than one-third of the NATO air defense fighters in the Central

9/ See the forthcoming CBO background paper, U.S. Air and Ground Conventional Forces for NATO: Firepower Issues.

10/ Ibid.

11/ Although France has the Mirage F-1 interceptor in its force, these are not under the command of Allied Air Forces Central Europe.

TABLE 2. CURRENT GROUND FORCE ORDER OF BATTLE FOR EUROPEAN AND CANADIAN NATO MEMBERS CONTRIBUTING TO THE DEFENSE OF THE NATO CENTRAL REGION

Country	Active Army Strength	Committed to NATO Center
Belgium	64,050	1 corps consisting of 1 armored brigade, 3 motorized infantry brigades, 2 reconnaissance battalions, 1 paracommndo regiment.
Canada	28,500	1 mechanized combat group consisting of 3 infantry battalions, 1 reconnaissance regiment, 1 light artillery battalion.
France ^{a/}	338,500	1 corps of the First Army consisting of 2 mechanized divisions (in the Federal Republic of Germany).
Federal Republic of Germany	345,000	3 corps consisting of 11 divisions (12th division with northern flank units).
The Netherlands	75,000	1 corps consisting of 2 armored brigades, 4 mechanized brigades.
United Kingdom	177,600	British Army of the Rhine, consisting of 1 corps of 3 divisions.

(Continued)

SOURCE: International Institute for Strategic Studies, The Military Balance, 1977-1978 (London: 1977); Richard D. Lawrence and Jeffrey Record, U.S. Force Structure in NATO: An Alternative (Washington, D.C.: The Brookings Institution, 1974), pp. 32-33.

TABLE 2. (CONTINUED)

Other Active Formations	Army Reserves	Active Air Force Strength
6 infantry battalions for territorial defense.	120,000 ready reservists to form 1 mechanized brigade, various logistics support and independent territorial defense units, plus 500,000 trained reservists as replacements.	19,900 men/ 144 aircraft
2 mechanized combat groups, 1 airborne regiment, 1 air-mobile combat group.	19,000 organized for mobilization on short notice.	36,000 men/ 210 aircraft
Remainder of First Army, consisting of 3 mechanized divisions (in France); Strategic Reserve, consisting of 2 airborne brigades, 1 motorized brigade (air transportable); and Territorial Defense Force, consisting of 2 alpine brigades, 2 motorized infantry regiments, 4 armored car regiments, 1 parachute battalion, 25 infantry battalions.	450,000 trained reservists; part of these make up 80 infantry battalions and 5 armored car regiments.	104,400 men/ 470 aircraft
Territorial Army consisting of 6 home defense groups, 300 motorized security companies, various combat support and service units.	1.8 million reservists; 540,000 available for immediate mobilization.	111,000 men/ 462 aircraft
Small number of regular army units for territorial defense.	350,000 trained reservists; 40,000 available for immediate mobilization to form 1 infantry division plus corps support troops.	19,000 men/ 160 aircraft
United Kingdom land forces made up of Strategic Reserve, consisting of 1 division and 1 commando regiment, and the United Kingdom Command, consisting of 18 infantry battalions.	120,000 Regular Army Reserves with specific mobilization assignments; 177,000 Army General Reserves used as general replacements; and 56,400 Territorial and Army Volunteer Reserves formed into combat and support units for home defense or for the British Army of the Rhine.	90,200 men/ 450 aircraft

a/ Although France does not formally commit forces to NATO, it does maintain forces in Germany which would presumably be used in a NATO war. See Lawrence and Record, U.S. Force Structure in NATO, pp. 32-34.

Front. The Commander of Allied Air Forces Central Europe, however, has authority over these aircraft and would deploy them wherever needed in the Central Region. These discrepancies can, then, be considered a relative weakness of allied forces but not of the allied corps sectors themselves.

Concerning logistics capabilities, the United States and Western European allies have, of course, quite different requirements. Western Europeans can employ ground transportation and have much shorter distances over which to move troops, equipment, and supplies. Even allowing for these differences, however, it appears that the United States has a generally greater capacity both for deploying forces rapidly and for sustaining them with resupplies of expendable weapons and equipment. Allied forces are not all located in their assigned sectors in Germany--part of the British Army is in Northern Ireland, for example, while units of the Dutch and Belgian forces assigned to Germany remain in their home countries. Allied transport aircraft, which would be used both to deploy troops and to resupply forces, have relatively limited capabilities. With respect to war reserves supplies, there are also significant variations among the different national armies. They maintain different supply requirements and different standards for calculating requirements. 12/ U.S. requirements have, however, recently been greatly increased; they are now significantly higher than those of most of the allies. 13/ Discrepancies such as these have led observers to characterize the allied corps sectors in NORTHAG as the "weakest link in NATO's capability to conduct a forward conventional defense on the ground." 14/

12/ See the forthcoming CBO background paper, U.S. Air and Ground Conventional Forces for NATO: Logistics Issues.

13/ According to a New York Times report of a U.S. government interagency study, the "United States' five-year defense plan calls for the provision of war stocks for a 90-day conflict, but, as the report notes, 'the other NATO countries have only about 30 days' worth of stocks and do not currently plan to buy more'." Richard Burt, "U.S. Analysis Doubts There Can be Victor in Major Atomic War," New York Times, January 6, 1978, pp. A-1, A-4.

14/ Barry Blechman, Robert Berman, et al., The Soviet Military Buildup and U.S. Defense Spending (Washington, D.C.: The Brookings Institution, 1977), pp. 31-32.

While all the Central Front allies plan to continue modernization of their forces over the next several years, their projected defense acquisitions will not necessarily result in major improvements in their present capabilities. While the allies generally share U.S. objectives for improving firepower capabilities, their modernization programs for artillery, tank, and antitank guided missile systems lag behind those programmed by the United States. Moreover, most of the new allied production is planned to replace, rather than augment, the present inventory. 15/ Discrepancies that now exist between U.S. and allied weapons per unit are not, then, likely to be altered in the near future. Allies are not planning to procure specialized close air support aircraft like the U.S. A-10; this is largely a matter of allied doctrine that does not emphasize the role of airmobile assets in direct support of ground troops. 16/ In the area of firepower, then, it does not appear that the discrepancies that now exist between U.S. and allied corps defenses will be corrected over the next several years.

In air defense, the situation is less clear. Allied countries have planned substantial new investments in air defense programs. The German, Belgian, and Dutch forces will acquire large numbers of self-propelled, radar-guided, anti-aircraft guns. The German army will also acquire the Roland, a short-range, radar-guided, surface-to-air missile. Although these are both technically advanced systems that will require considerable allied expenditures, it is not clear that they will offset fully the lack of in-depth, long-range, surface-to-air missile (SAM) coverage in allied sectors. In fighter aircraft, the Dutch and Belgians will acquire the F-16. The Germans plan to improve their F-4E Phantom. As mentioned earlier, these forces will be under the command of Allied Air Forces Central Europe and can be deployed wherever they are most needed. The F-16 and F-4 do not, however, have capabilities comparable to the F-15 for countering low-altitude attacks. It is not clear, therefore, that deployment of the F-16 and F-4 in the NORTHAG area would entirely offset the inadequate coverage of the rear areas of allied sectors.

In logistics programs, allied forces, in direct contrast to U.S. forces, have the fewest improvements planned. Although

15/ See the forthcoming CBO background paper, U.S. Air and Ground Conventional Forces for NATO: Firepower Issues.

16/ Ibid.

the allied governments have formally endorsed programs to increase their war reserves substantially, on-going acquisitions still lag far behind those of the United States. 17/ There are apparently no major allied acquisition programs planned which would bring their war reserves to levels equivalent to those planned for the United States. 18/ Britain, Belgium, and the Netherlands are planning neither to deploy all their forces to their sectors nor to make such tactical mobility improvements as might be necessary to increase mobilization capabilities.

It seems unlikely that allied governments will, over the next several years, substantially expand upon their currently programmed force improvements. The improvements presently planned would require a real increase in defense spending--possibly in the range of the 3 percent agreed upon by alliance members in the May 1977 meeting of defense ministers. 19/ Decisions to increase defense spending beyond this level would be particularly difficult if predictions of a continuing slow Western European recovery from the 1974-1975 recession, a low rate of real growth in GNP--roughly 4 percent--and persistent inflation in the range of 7 and 8 percent are realized. 20/ Moreover, even if Western European governments did decide to increase or reallocate their defense spending, it would take several years before newly approved purchases could enter their forces.

17/ "NATO Ministers Cite Wider Force Gap," Aviation Week (December 12, 1977), p. 19; Michael Getler, "NATO Agrees on Weapons Stockpile," The Washington Post, December 7, 1977.

18/ Richard Burt, op. cit.

19/ Western Europeans also agreed at the May 1977 North Atlantic Council (NAC) ministerial meeting to make near-term improvements in three defense areas: anti-armor, readiness, and war reserves stocks of ammunition and other consumables. Their current programs emphasize anti-armor improvements, but major expenditures on war reserves and readiness could require increases beyond those presently planned. (See David A. Brown, "NATO Leaders Hike Defense Budgets," Aviation Week and Space Technology (May 23, 1977), p. 21.)

20/ See "The Economic Outlook at Mid-1977," OECD Observer (July 1977), pp. 19-26.

In summary, then, not only would it appear that U.S. forces are considerably better armed than those of the Western European allies, but also that U.S. forces--even without major increases in expenditures for force modernization and expansion--would remain so for the next several years. The most frequent counter-example to such comparisons are West German forces. West Germany, however, shares responsibilities with the United States for defending CENTAG, the southern half of the Central Region. This means that the alliance's most capable forces are concentrated along the portion of the West German frontier which is considered the least vulnerable to attack.

These discrepancies--between U.S. forces and most Western European forces, between the defenses of the northern and southern portions of Germany--raise the question of how, if at all, improvements in U.S. forces can significantly strengthen overall NATO defenses. That question is best considered in terms of the various roles of U.S. forces in alliance defense.

ROLES OF U.S. FORCES IN NATO DEFENSE

U.S. forces contribute in three ways to the defense of NATO's Central Region. Each of these roles emphasizes different force capabilities, procurement requirements, and different relations with Western European forces.

First, U.S. ground forces in Germany are responsible for the defense of their two assigned sectors, the V and VII corps areas, along the West German border. The equivalent of five U.S. Army divisions with full support facilities and corps command headquarters is permanently stationed in these sectors.^{21/} In wartime, these forces could be redeployed by the NATO command to northern Germany. Substantial and time-consuming problems would be involved, however, in moving and supporting these troops beyond their corps command and U.S. support facilities.

Second, U.S. forces stationed in Germany could also assist allied armies in defending their sectors along the German border.

^{21/} Forward deployments of U.S. ground forces in Europe are composed of the equivalent of 2-1/3 armored divisions, 2-2/3 mechanized infantry divisions, and two armored cavalry regiments.

For the ground forces, this would mean that mobile assets and supplies, if available in sufficient numbers, could be provided to support Western European armies defending their own corps sectors. For U.S. air forces, the use of U.S. resources to support allied armies would be automatic. National air defense aircraft come under the direct control of the Commander of Allied Air Forces Central Europe. In wartime, this command would allocate aircraft from one area of the Central Region to another according to assessments of need.

Third, forces stationed in the United States that are available for immediate deployment to Europe are the major source of reinforcements for NATO. At present, the United States maintains the equivalent of two divisions ready for immediate deployment to Germany, where full stocks of weapons and equipment are held for them. These forces are intended to be available on the first day of battle. There are 11 more divisions in the United States that could be deployed with their equipment to Europe. It is estimated that they could all be transported to Europe within several weeks. The timing of their arrival would depend on circumstances such as the availability of airlift and sealift and the efficiency of procedures for reassembling the divisions and their equipment in Europe. The forces that could immediately be moved to Europe and that would have full sets of equipment awaiting them there are the most important elements of U.S. reinforcements because they would be the most certain of arriving in time to affect the outcome of the war. The more such forces the United States has ready for immediate deployment and the better the facilities for quickly moving them, the more reinforcements there would be that could support the areas of the Central Region that were the most hard-pressed.

PROCUREMENT ISSUES FOR FISCAL YEAR 1979

In approving the defense procurement budget for fiscal year 1979, the Congress will have the opportunity to indicate which, if any, of these roles it wishes to see expanded. Each of these aspects of U.S. NATO defense emphasizes different force capabilities and relies upon different mixes of weapons and equipment. As presently programmed, defense procurement over the next five years will finance major new weapons and equipment to improve capabilities in each of these roles. If the Congress wishes to restrict the rapidly increasing procurement costs of ground and air forces, it may wish to consider selecting among these roles and approving major expenditures only for those capabilities which it now wishes to expand.

Firepower

Major procurement decisions concerning firepower can be divided between ground-based firepower assets, which would primarily improve capabilities for defense of U.S. corps areas, and airborne firepower assets, whose addition to the forces would improve capabilities to augment allied forces along the Central Front. 22/

For ground-based firepower assets, the principal issue is whether the United States should proceed as planned with full production of a new, expensive XM-1 tank and an associated infantry fighting vehicle. Research and development is nearly completed for the XM-1. If production of the XM-1 is approved, 3,312 of these tanks would be purchased over the next nine years at a total cost of \$4.7 billion (current year dollars). Total procurement costs for the associated improved armored personnel carrier are estimated to be \$1.3 billion, again in current year dollars. The Army is also continuing production and modifications for the less costly M60A3 tank and an associated armored personnel carrier. Equivalent production of these tanks and personnel carriers would total \$588 million and \$247 million, respectively, over the next five years. Thus, there can be substantial differences in firepower costs depending upon what mix of XM-1 and M60 tanks is approved. The reputed benefits of the XM-1 tank over the M60 are its greater speed, maneuverability, armor protection, and ability to fire while moving. These improvements would enhance the capabilities of U.S. forces in the V and VII corps areas, as well as those of later-arriving divisions that might be used to reinforce allied sectors in northern Germany. Expenditures for the XM-1 could enhance the potential for early reinforcement of troops in northern Germany, however, only if they were accompanied by expenditures to increase airlift capabilities or to provide prepositioning for U.S. divisions that could be available from the beginning of the war.

By contrast, airborne firepower assets can immediately be used to support not only U.S. troops in the V and VII corps areas, but also allied forces in their assigned sectors. Several major purchases of airborne firepower assets have been proposed for

22/ A detailed discussion of these programs can be found in the forthcoming CBO background paper, U.S. Air and Ground Conventional Forces for NATO: Firepower Issues.

fiscal year 1979; their approval would be consistent with a policy of emphasizing the U.S. role of augmenting allied defenses with assets stationed and available near the Central Front. The most important of these decisions concerns a new close air support aircraft, the A-10. 23/

Close air support aircraft are used in coordination with ground forces to fire upon the enemy's forward positions. U.S. forces now perform this mission with A-7D attack aircraft and F-4 and F-111 fighter bombers. The Air Force, however, also has in production the A-10 aircraft, which is intended to provide larger weapon capacity and greater effectiveness against tanks than these other, less specialized planes. A decision to approve continued production of the A-10 would mean that 733 of these aircraft would be procured by 1982, at a total cost of \$4.5 billion in current year dollars.

Air Defense

In discussing air defense, procurement decisions can also be divided between ground-based systems, which are of direct value primarily for the defense of the V and VII corps areas, and aircraft, which can contribute to the defense of both U.S. and allied sectors. 24/ U.S. ground-based systems, which the United States plans to deploy in its sectors, include long-range and short-range surface-to-air missiles and guns. The

23/ Another item of airborne firepower equipment which is not discussed here is the helicopter. The Army now relies upon the Cobra helicopter to accompany ground forces, locate enemy forces, and fire upon them. A modernization program is underway to improve the Cobra helicopter by fitting it with additional antitank guided missiles. At the same time, a new helicopter, the advanced attack helicopter (AAH), is being developed. The AAH, which has heavier armor and more sophisticated designator systems for its missiles, is intended to be less vulnerable to enemy fire than the Cobra. It is also significantly more expensive--\$6.7 million per helicopter compared to \$1.7 million.

24/ A detailed discussion of these programs can be found in the forthcoming CBO background paper, U.S. Air and Ground Conventional Forces for NATO: Air Defense Issues.

most expensive program to be considered in this category is the new Patriot surface-to-air missile. At a total program cost of \$5.9 billion (current year dollars) over the next 11 years, the Patriot would replace two existing missiles, the Nike Hercules and Hawk. The Patriot is designed to provide better capabilities against high- and medium-altitude targets and to resist jamming. Expenditures on fixed ground-based assets for the V and VII corps could be lowered by limiting the purchase of Patriot missiles and using them to replace the Nike Hercules but not the Hawk. Other modernization programs to be considered are the acquisition of a new self-propelled, radar-guided, anti-aircraft gun, a new infrared man-portable missile, and an improved short-range surface-to-air missile.

Consideration of aircraft for air defense will center on two important new fighters, the F-15 and the F-16. The F-15 is an all-weather interceptor with special capabilities designed to enable it to counter aircraft penetrating at low altitudes. It is a very expensive aircraft, with unit procurement costs of approximately \$13.4 million in fiscal year 1977 dollars. Currently in production, six wings of F-15s will enter U.S. forces by 1981 if continued procurement is approved. Production is scheduled to begin in fiscal year 1978 for the F-16, a smaller, multipurpose aircraft. At a procurement cost of approximately \$6.7 million per unit in fiscal year 1977 dollars, the F-16 is considerably less expensive than the F-15. Present plans are to buy 1,388 of these aircraft over 11 years. Production rates for either aircraft could be adjusted in fiscal year 1979. These fighter aircraft would be deployed by the Commander of Allied Air Forces Central Europe as needed throughout the Central Front. Decisions about the rate and mix at which the United States acquires these aircraft should, therefore, be seen as decisions about how much should be spent for flexible assets that will be used to defend both U.S. and allied sectors along the Central Front.

Other proposed improvements for air defense involve aircraft shelters and collocated operating bases. These are continuing programs for which the Congress will be asked to provide additional funds in fiscal year 1979. 25/

25/ Both shelters and collocated operating bases are considered to be "passive air defense." Shelters protect U.S. fighters while they are on the ground. Collocated operating bases are

Logistics

Procurement decisions concerning logistics systems involve all aspects of U.S. participation in NATO. Here, the Congress faces decisions that will affect not only U.S. capabilities to defend the V and VII corps areas and to augment allied defense of other corps areas, but also the capability to deploy full reinforcement units from the United States to the Central Front.^{26/} It is in this area also that the Congress faces decisions concerning the largest procurement expenditures over the next five years.

Several programs to improve strategic--that is, intercontinental--airlift will be subject to review in fiscal year 1979.^{27/} The most important of these is the Advanced Tanker/Cargo Aircraft (ATCA). Procurement funds for fiscal year 1979 might be as small as \$269 million, but total program costs through fiscal year 1983 could rise as high as \$4.5 billion in current year dollars. Expenditures for improved strategic airlift should be considered in conjunction with programs to increase the amount of weapons and equipment held ready in Europe for divisions deployed from the United States. Referred to as POMCUS (prepositioning of materiel configured to unit sets), these in-theater storage centers reduce the demands on strategic airlift to deploy equipment. Expendi-

allied bases with excess peacetime capacity on which facilities are constructed to permit dispersed "bed-down" of U.S. fighters normally based in the United States but transferred to Europe during mobilization. For a more detailed discussion of shelters and collocated operating bases, see the forthcoming CBO background paper, U.S. Air and Ground Conventional Forces for NATO: Air Defense Issues.

- 26/ A detailed discussion of these logistics systems procurement issues can be found in the forthcoming CBO background paper, U.S. Air and Ground Conventional Forces for NATO: Logistics Issues.
- 27/ Strategic airlift is discussed here in terms of its use for NATO's Central Region. Strategic airlift can also be used to move forces to other areas of the world. For a discussion of strategic airlift costs and capabilities from a non-NATO perspective, see a forthcoming CBO study on U.S. projection forces.

tures for POMCUS and strategic airlift are expenditures to improve U.S. capabilities to provide rapid reinforcement to the Central Front.

The Congress will also be asked to approve funds for modernization of tactical--or intra-theater--airlift. Larger planes with greater capabilities are reportedly needed if the heavier firepower assets planned for ground forces are to be airlifted to the Central Front. Several new transport planes are under consideration: the advanced, medium STOL transport (AMST) and a stretched STOL C-130. Although intra-theater mobility supports capabilities for all U.S. roles in the alliance, large procurements of these new transports would be of greatest value in improving U.S. capabilities to augment allied forces on the Central Front and to provide reinforcements.

The other major issue in the logistics area is the procurement of additional stocks of ammunition and other expendables. The Army has nearly doubled its official requirements for war reserves; substantial purchases would be necessary to meet those requirements. Again, these expenditures would improve U.S. force capabilities in all three roles. A general increase in war reserves would most directly contribute to the capability of U.S. forces in the V and VII corps areas to sustain their defenses against an intense Warsaw Pact attack. A selective increase that would build additional stocks of materiel which could be provided to the allies would, however, also be consistent with improving capabilities to augment allied forces on the Central Front.

These separate procurement decisions can be combined to form alternative procurement policies. In choosing among such policies, the Congress will have the opportunity to indicate its preference for a U.S. posture within the NATO alliance.



CHAPTER III. OPTIONS: U.S. DEFENSE COSTS AND U.S. PARTICIPATION
IN NATO

In approving the fiscal year 1979 defense budget, the Congress faces decisions concerning how large--and how costly--a role U.S. conventional forces should assume in NATO defense. As discussed earlier, the United States contributes to the defense of NATO's Central Region in three ways: by maintaining forces in Germany to defend assigned U.S. sectors along the border; by making the mobile assets of the forces stationed in Germany available to assist allied forces in defending their sectors; and by maintaining forces in the United States that can be quickly deployed to Europe as reinforcements. U.S. forces now perform all of these roles. Expanding U.S. capabilities for performing any one of these roles would, however, involve emphasizing improvements in different aspects of U.S. conventional forces and would require different procurement priorities. The choices before the Congress in approving new defense expenditures can be understood as options about which of these roles should be given budgetary emphasis.

These are also basic choices about how much the United States will spend on conventional forces. Over the next five years--most of this equipment will be bought over production periods of at least five years--the cost distinctions among these options could mean the difference between relatively steady and sharply increased expenditures on air and ground conventional forces.

The costs and savings of alternative defense programs are best measured against the Defense Department's five-year defense plan. This plan--the current version of which accompanied the fiscal year 1978 Presidential budget--is the Pentagon's official statement of its long-range procurement and spending programs. The plan includes projected spending for fiscal years 1978 through 1982. These data provide a base from which Congressional adjustments in defense costs can be added or subtracted. 1/ The plan

1/ The options presented here are for spending during the five-year period fiscal years 1979-1983. The five-year program

also serves as an indicator of the direction defense expenditures would take if the Congress did not alter the Defense Department's program.

That direction would be a sharp increase in defense spending. Between fiscal years 1978 and 1979 alone, the projected Department of Defense program would result in a 16.3 percent real increase in procurement spending on ground and air forces. That increase would be necessary to carry out the Department's plans for continued expansion and modernization of U.S. ground and air forces. Since 1974, the Army has expanded the number of its active divisions from 13 to 16 within a constant manpower ceiling. The Army has also begun a program of replacing existing weapons with more sophisticated systems and of building greatly increased inventories of expendable weapons and supplies. The Air Force has underway a similar program establishing more wings and procuring more modern aircraft to replace existing aircraft.

If this program is followed, the United States would, over the next five years, procure major new items of equipment for expanded ground, air defense, and logistical forces. For increased firepower, the United States would buy sufficient new tanks to equip nine divisions and would procure five wings of A-10 close air support aircraft. In air defense, the United States would purchase 2-1/3 additional wings of F-15s and six additional wings of F-16 fighter aircraft. In logistics, purchases would be made for 88 new strategic transport planes and 801 transport helicopters. Substantial expenditures would also be made towards doubling U.S. supplies of ammunition.

These programs are, however, subject to major changes. The Administration normally amends the previous year's program when it submits the defense budget; the fiscal year 1979 Defense Department request will contain some revisions of these programs.

used as a baseline for measuring the costs and savings of these options is drawn from the Defense Department's fiscal year 1978 five-year program. The first four years discussed in this paper, fiscal years 1979-1982, are based on those programs that were provided to the Congress by the Defense Department as part of its fiscal year 1978 justification for procurement of major items of weapons and equipment. The fifth year, fiscal year 1983, was constructed from projections of those programs.

In enacting the fiscal year 1979 budget, the Congress can also add, subtract, or reallocate funds now requested for the purchase of these weapons and items of equipment. The wide range of choice available to the Congress is illustrated here by three alternative options which are associated with different costs, policies toward the alliance, and emphases on different aspects of U.S. roles in NATO defense. The first option would provide for a moderate increase--below that programmed in the five-year plan--in procurement spending on ground and air forces. This option would not only proceed with the basic program for modernizing U.S. forces, but would also approve additional air defense aircraft and war reserve supplies which would increase U.S. capabilities for augmenting allied defenses. A second option would involve a substantially greater increase in procurement spending above that programmed in the five-year plan. This course would not only modernize U.S. ground and air forces, but would also significantly increase capabilities for providing rapid reinforcements to allied armies. A third option offers an alternative for substantially reducing the expenditures planned in the five-year program and reversing the trend of recent years for sharply increased procurement spending for NATO ground and air forces. This option would permit continued modernization but would reduce recent additions to ground forces and would limit planned expansions of air forces.

In choosing among these options, the Congress may wish to take into consideration the Administration's commitment to a minimum of 3 percent real growth in U.S. defense expenditures. 2/ In May 1977, all NATO members agreed to sustain a minimum of 3 percent real increase in their defense spending in order to strengthen alliance defenses. The U.S. agreement to this policy, of course, requires Congressional action to become effective.

The issue before the Congress involves not only the question of whether to confirm this policy, but also how to interpret it. The NATO agreement did not specify how alliance members should calculate a real increase in defense spending. For the United States, it remains a matter of interpretation whether this agreement applies to the entire defense budget or only to conventional forces committed to NATO. Depending upon which interpretation is adopted, the necessary real increase in U.S. defense spending could range from less than \$1 billion to more than \$3.5 billion in additional fiscal year 1979 expenditures. The Congress, then,

2/ See Chapter II, footnote 1.

has a choice of interpreting this NATO commitment either narrowly or broadly.

The options considered here deal with only a portion of U.S. defense resources--ground and air conventional forces. In relation to the NATO agreement, however, these options illustrate procurement packages which, within these selected areas, represent moderate, substantial, or no real growth in spending. Table 3 presents illustrative costs for each of these options from fiscal year 1979 through fiscal year 1983.

TABLE 3. COSTS OF U.S. PARTICIPATION IN NATO DEFENSE--CHANGES TO FISCAL YEARS 1978-1982 FIVE-YEAR DEFENSE PROGRAM: BY FISCAL YEAR, IN BILLIONS OF CURRENT YEAR DOLLARS

	1979	1980	1981	1982	1983
Baseline (DoD Program)	134.3	144.7	155.6	165.7	176.5
Option I Building Forces to Augment Allied Defenses	-0.1	-0.9	-1.4	-2.0	-0.2
Option II Building Forces to Reinforce Allied Corps Sectors	1.0	1.4	1.6	2.5	1.8
Option III Modernizing Smaller U.S. NATO Forces	-1.6	-3.1	-5.1	-6.7	-4.8

OPTION I. BUILDING FORCES TO AUGMENT ALLIED DEFENSES

The Congress may wish to approve a defense budget with a moderate real increase in procurement for U.S. ground and air

forces. 3/ The most effective use of such increased spending would appear to be for the acquisition of additional aircraft and supplies for U.S. forces in Germany. These assets could be used for the defense not only of U.S. sectors, but also of allied sectors. This would primarily mean increased procurement of aircraft, which could be distributed by Allied Air Forces Central Europe to assist allied forces, and ammunition, which could be provided to allied armies. Total expenditures would be roughly \$3.6 billion below those programmed in the Defense Department's five-year defense plan. A set of budget decisions that would be consistent with this policy would include:

- o Approving funds for two additional wings each of F-16 fighter and A-10 close air support aircraft, and also for additional base facilities in Europe.
- o Procuring additional interoperable ammunition and other war reserve materiel that could be provided to allied forces as their supplies were expended.
- o Denying funds for ATCA and AMST transport aircraft.

The primary expense incurred in this option is for the additional procurement of the F-16 fighters and the A-10 close air support aircraft. 4/ These aircraft will be the most mobile of the major systems under review; they can be deployed very quickly throughout the Central Front. They are also the most likely to be deployed promptly and effectively where they are needed. Unlike other NATO commands, Allied Air Forces Central Europe has peacetime operational control of some national air defense assets--

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- 3/ Aside from procurement spending, there will be some automatic increases in spending on NATO conventional ground and air forces as maintenance, operations, and manpower costs rise.
 - 4/ An alternative means of providing additional fighters for NATO would involve the use of aircraft from carriers in over-haul and from one Marine aircraft wing. This alternative is discussed at length in the forthcoming CBO background paper, U.S. Air and Ground Conventional Forces for NATO: Air Defense Issues.

such as air defense fighter aircraft. 5/ If a war began, the command would also assume control of close air support aircraft and could deploy assets from national tactical air forces to whichever area of the Central Region the command assessed as having the greatest need.

It is quite possible that this command's assessment might find needs greatest in the allied sectors of NORTHAG. The allies do not deploy long-range surface-to-air missiles (SAMs) in depth, and the rear areas of their sectors might be more vulnerable to attack than those of the United States. 6/ This thinner deployment increases the probability that Warsaw Pact aircraft could penetrate the missile belt along the Central Front, enter relatively less well-protected areas, and reach important targets in the rear. The relatively sparser in-depth deployment of SAMs in NORTHAG might also be seen as increasing the probability that the Warsaw Pact would concentrate its initial air attacks against the North.

NATO air defense fighters could partially compensate for this weakness. Most fighters could provide in-depth protection, countering high- and medium-altitude aircraft which penetrated the Central Region's SAM belt. If they were capable of engaging low-altitude penetrators--both the F-15 and the F-16 have better capabilities for this than other aircraft available to Allied Air Forces Central Europe--they could more effectively offset thin missile coverage. Because allied long-range surface-to-air missile coverage is weakest at low altitudes, this becomes a particularly valuable quality in NATO fighters. 7/ Since fighters, however, do not offer full capabilities in all weather conditions or the continuing coverage of ground defenses, they would not fully substitute for adding and improving ground systems in NORTHAG. In acquiring additional F-16 fighters, however, the United States would be investing in assets that would directly, although not fully, offset a relative deficiency in allied corps

5/ For a full discussion of this command relationship, see the forthcoming CBO background paper, U.S. Air and Ground Conventional Forces for NATO: Air Defense Issues.

6/ Ibid.

7/ Ibid. If allied forces acquire the Patriot missile, their low-altitude defense might be somewhat improved.

areas. The A-10 close air support aircraft should be able to serve a similar function in substituting U.S. air assets for allied ground resources. The A-10 should be able to compensate in part for weaknesses in allied firepower. Together, the proposed four additional wings of F-16 and A-10 aircraft would increase defense expenditures by \$3.2 billion in operations and procurement costs over the five-year program.

In logistics, the problems of augmenting allied forces with U.S. assets become more complex. The most important of these complications is the diversity of NATO's national armies. The same decentralized national planning and variation of armaments that makes the prospect of moving assets among sectors attractive in theory also makes it difficult in practice. Variations in supplies, doctrine, and procedures mean that the assets of one NATO army might not be useful to another. The U.S. Army could, for example, offset the reported deficiencies in allied war supplies by providing materiel as allied forces exhausted their own inventories. Only certain of the ammunition and other exhaustible supplies used by the United States, however, could also be used by allied armies. Dissimilar size, powder charges, loading requirements, and usage of ammunition could prevent successful resupply. U.S. war reserves could be expected, then, to help sustain only certain of the allied operations. To the degree that some materiel critical to allied missions was exhausted and not resupplied, all such support efforts might be futile.

The primary benefit of this procurement policy is that it would contribute to more balanced NATO defenses in the Central Region. The flexible assets which it emphasizes would be available with little or no time required for mobilization. They would also be available throughout the Central Region and would increase the possibilities of redistributing resources from the least to the most hard-pressed sectors. These assets would serve as a hedge against the uneven capabilities of NATO forces and uncertainty about where a major Warsaw Pact attack would be concentrated. Also, by emphasizing flexible assets in its force mixture that could be allocated across national sectors, the United States might contribute to efforts within NATO to bring about closer alliance coordination.

There are also, however, two sets of impediments to U.S. augmentation of allied forces at the Central Front. First, all such efforts would involve the substitution of mobile assets, which could be diverted from U.S. forces, for ground-based assets, in which allied sectors are relatively weak. While

U.S. mobile equipment could help to offset these weaknesses, the substitution might not be complete. Second, these additional aircraft would also be available to assist the allies only during acceptable flying conditions. Low-visibility weather conditions are frequent in Central Europe and could limit the usefulness of these aircraft. Poor weather conditions, however, could also constrain air attacks. Major improvements in NATO defenses in northern Germany will still rely upon West European initiatives in strengthening their own forces. Even the effective use of U.S. assets in northern Germany would depend on improvements in coordination and consistency across NATO's national armies. There is no assurance that current attempts to coordinate alliance forces will be more successful than those in the past. If such present impediments are taken as reasons not to improve such capabilities, the Congress may prefer to consider expenditures which would build capabilities to reinforce NATO with full units from the United States.

OPTION II. BUILDING FORCES TO REINFORCE ALLIED CORPS SECTORS

The greatest expansion of the U.S. role in NATO defense and the greatest increase in U.S. defense costs are associated with building reinforcement capabilities. The most certain and direct improvements in the overall NATO posture could be attained by providing additional U.S. divisions for deployment to support allied sectors in northern Germany. Given this objective, the equivalent of the three divisions recently added to U.S. ground forces could be allocated for NORTHAG reinforcement. ^{8/} Because

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- 8/ A reinforcement of three U.S. divisions for NORTHAG within the first two weeks of mobilization was proposed as early as 1974 in a Brookings Institution study. (See Richard D. Lawrence and Jeffrey Record, U.S. Force Structure in NATO: An Alternative (Washington, D.C.: The Brookings Institution, 1974), p. 132.) General Alexander Haig, the Supreme Allied Commander, referred to this reinforcement concept in recent Congressional testimony when he described the decision to station a U.S. brigade in NORTHAG as the lead element of a rapidly deployable U.S. corps. (See Fiscal Year 1978 Authorization for Military Procurement, Research and Development, and Active Duty, Selected Reserve, and Civilian Personnel Strengths, Hearings before the Senate Committee on Armed Services, 95:1 (March 1977), Part 5, p. 3408.)

they are recent additions to the force structure, this commitment could presumably be made without degrading capabilities for reinforcing U.S. corps in southern Germany or for U.S. commitments elsewhere. In order for these divisions to be available in Europe from the beginning of hostilities, their weapons and equipment would be prepositioned in northern Europe, to the rear of the allied corps they would reinforce. Furthermore, to ensure that these forces would have sufficient facilities for central command and support, a U.S. corps headquarters would also be located in northern Germany. While establishing such a headquarters in the north would not involve great expenses, it would represent a very visible enlargement of the U.S. role in NATO.

Overall, this option would add at least \$6.5 billion to the five-year defense program. The major identifiable expenditures would include:

- o Approving funds for accelerated production of the XM-1 tank.
- o Providing funds for the construction and maintenance of three centers for prepositioned weapons in northern Europe, and also for such additional procurement as may be needed for weapons and equipment to stock these centers.
- o Approving increased procurement for ammunition and other war reserves to support the three additional divisions that would be deployed in Europe from the beginning of the war, and providing funds for additional facilities to store war reserve supplies in Europe for these forces. (Because of constraints on how quickly war reserves could be purchased and on how quickly additional storage sites in Europe could be acquired, further expenditures would be required beyond the five-year period.)
- o Providing funds for one additional wing of F-16 fighters and approving programmed production for the F-15 fighter and the A-10 close air support aircraft.
- o Approving ATCA and CRAF expansion of strategic airlift programs to accelerate the deployment of U.S.-based divisions which do not have prepositioned equipment, and approving full production of the UTTAS cargo helicopter and the AMST for intra-theater airlift.

The major expenses of this option would be incurred in providing new weapons, equipment, and support for the Army's enlarged ground force structure. Other primary expenses would be associated with the prepositioning of the three divisions; they would have to be equipped to fight from the beginning of the war in an area of Germany in which the United States does not now maintain lines of communication, support facilities, or command headquarters. These investments in ground forces would mean that fewer air assets would be needed than in the previous option, since allied forces would be assisted with full U.S. ground units rather than with aircraft. Those savings would be relatively small, however, in comparison to the greatly increased costs of ground forces and logistics. Far more than the other options, this policy would be likely to involve additional follow-on costs which cannot now be readily identified. The complications of establishing and maintaining facilities for these divisions would raise many possibilities for unpredicted expenses.

In purchasing firepower assets for this option, increases over the present five-year program would be necessary. For the XM-1 tank, the additional costs of doubling procurement over the five-year program would be approximately \$1.9 billion. The only air defense expenditures above those now planned would be for an additional wing of F-16s. This would increase air defense expenditures by approximately \$0.8 billion. In total, then, firepower and air defense costs would rise by \$2.7 billion over the next five years in current year dollars.

The greatest foreseeable expenses of this policy would be for logistics. All of the major strategic airlift and tactical airlift procurement programs would be approved. With three additional divisions in northern Germany from the beginning of the conflict, substantially increased assets would be needed for supply and resupply, both from the United States to Europe and within Europe. Also, increased airlift capabilities would be acquired in order to accelerate the deployment of U.S.-based divisions whose equipment would not be prepositioned in Germany. Accordingly, strategic airlift capabilities would be augmented by approval of the ATCA and CRAF programs. In tactical airlift, procurement would proceed for the AMST and UTTAS. Total procurement costs for these systems, as projected in the five-year program, would be \$12.6 billion in current year dollars.

Several other important logistics costs would, however, involve expenses beyond those now planned. A supply cost that is not projected in the five-year program would be the increased

requirement for ammunition and other expendables that would be necessary to support the three additional divisions. While such estimates cannot be certain, it seems likely that such expenditures could total at least \$4.1 billion over the next five years. Even more difficult to estimate are the costs of procuring additional weapons and equipment for the prepositioned stocks of the three divisions. The Army attempts to provide prepositioned stocks from existing inventories. As a matter of official policy, these stocks are not to be assembled by purchases beyond those authorized for the force structure. As a matter of practicality, however, it seems doubtful that three full division sets of weapons and equipment could be provided for storage in Europe without new procurement--either for the storage centers or for replacement of other stocks that were drawn upon for the European storage centers. Some materiel, such as communications equipment items for which spares are not bought to replace combat losses, would not likely be available from any stocks in sufficient numbers to supply new POMCUS centers without additional procurement. Another difficulty is that, although the Army would normally take some portion of prepositioned equipment from reserve training stocks, drawing from these stocks would conflict with announced policies of improving reserve readiness by building reserve training equipment supplies.

Depending upon how these POMCUS centers were built and stocked, their costs could vary dramatically. Assuming that only selected new purchases were made for items held in limited inventories, the additional procurement costs generated by prepositioning over the next five years would be approximately \$0.9 billion to \$1 billion. These costs would be significantly increased, up to as much as \$3 billion, if equipment were not drawn from reserves and active units in the United States but purchased directly for POMCUS centers or purchased to replace equipment taken from the active and reserve forces. If the sites could be acquired through sponsorship by the German government and built with assistance from alliance funds for military construction, the expense of building the three facilities might be held to approximately \$60 million. 9/ If, however, real estate and

9/ The NATO infrastructure fund, the common alliance fund that supplements national budgets for building permanent installations, has obligated nearly all of its resources through 1979. A new fund must be negotiated by alliance members before alliance support could be available. These negotiations are scheduled for completion late in 1979.

full building costs were to be borne by the U.S. government, the costs of the POMCUS centers themselves could rise to as much as \$500 million. In total, then, the full costs of building and stocking three new POMCUS centers could range from \$1 billion to \$4.4 billion in current year dollars.

These additional defense costs might be considered appropriate if the Congress wished to invest in building U.S. capabilities that seem most certain to provide a strengthened NATO defense. While considerably more costly than Option I, this option is also far more certain to achieve improvements. NATO improvements would not rely upon Western European efforts to enhance the capabilities of their sector defenses or upon improved coordination within the alliance command. The three additional divisions deployed from the United States would be largely self-contained; the constraints of coordinating the use of U.S. assets with allied doctrine, operations, and equipment would be reduced. By prepositioning the three additional divisions in northern Germany, the United States would be certain of their being available for use in the most critical area of NATO defense during the early phases of a war. If it is assumed that the outcome of a war would be determined during the first weeks, these three divisions might be of little value to NATO unless their equipment were prepositioned. Without such prepositioning, these additional divisions would ensure only that the stream of U.S. reinforcement divisions from the United States could be further sustained after weeks of airlifting and sealifting the 11 divisions already available for deployment to NATO.

Two reservations can be raised against this course; both involve uncertainties about Western European responses. First, in so expanding its role in NATO defense, the United States could be providing a disincentive to Europeans to make improvements in their own forces. To the extent that it is considered either politically or militarily unwise to use U.S. military resources to offset deficiencies in allied forces, this very visible expansion of U.S. capabilities might be judged inappropriate. Such a policy could be seen as a first step--and one very difficult to reverse--in gradually expanding U.S. responsibilities for defending Europe.

Second, a more immediate set of questions about European cooperation concerns the facilities and agreements needed to carry out a program of prepositioning three more U.S. divisions and a corps headquarters in northern Germany. Allied consent would be required for establishing these installations and for acquiring

the sites. Also, unless substantially greater increases in U.S. logistics and support requirements than those outlined above were intended, arrangements would have to be made with West Germany for maintaining these additional facilities during peacetime and in time of war. At present, such consent has not been obtained. Questions such as who would provide air defense systems to protect the vulnerable POMCUS sites remain unresolved. The Congress may wish to consider whether it wishes to approve these defense expenditures before arrangements have been made for carrying out this expansion of U.S. participation in NATO defense.

OPTION III. MODERNIZING SMALLER U.S. NATO FORCES

The Congress may, for a number of reasons, prefer to reverse the trend towards increased spending on U.S. NATO forces. This position could be associated with a policy of controlling U.S. defense costs until it is clear what improvements allied governments may make in their forces. The Congress may prefer to direct increases in U.S. defense spending to capabilities for contingencies other than a European engagement or to allocate increases in the U.S. budget to nondefense accounts. This position could also be adopted on the grounds that the other alternatives are unacceptable--that, under the present structure of NATO defenses, small increases in U.S. forces, such as proposed in Option I, are too little to be effective and that large increases, while possibly effective, are too costly to be acceptable. In that case, the Congress may prefer to restrict further increases until progress has been made in institutional reforms in NATO that would permit a viable middle ground.

As discussed above, restricting expenditures on U.S. ground and air forces would require a reversal of recent trends towards force expansions and increased weapons and supply requirements per unit. Assuming that U.S. force modernizations are continued, one of the few available measures that could quickly reduce defense costs would be to delete the three divisions that have been added to U.S. Army ground forces since fiscal year 1974. If the Congress rejects the Option II policy of prepositioning the equipment for these additional divisions, these divisions would have little value during the early period of a NATO war--the phase that most planning now emphasizes as critical to the outcome of a war. Without prepositioning, these divisions would add only to the strength of U.S. reinforcements that could be deployed after at least several months of war. Accordingly, then, this option would delete these divisions, approve procurement only for

the remaining 21 divisions of Army ground forces, and hold aircraft and support acquisitions to levels necessary to maintain, but not expand, the U.S. presence in Europe.

These policies would result in substantial savings from the Defense Department's five-year program--approximately \$16.8 billion. These savings would be derived from restricting major new programs to only those appropriate to maintain U.S. responsibilities in the U.S. sectors. Budget actions consistent with this policy would include:

- o Deleting the three recently added active divisions from U.S. ground forces.
- o Approving procurement of the XM-1 tank and associated armored personnel carrier, the advanced attack helicopter, and short-range air defense systems, and reducing purchases of ammunition and other war reserve supplies to levels appropriate to the smaller force structure.
- o Reducing production of F-15 and F-16 fighter aircraft to provide a total of five F-15 wings and eleven F-16 wings--that is, one wing each below current plans.
- o Approving procurement of the UTTAS transport helicopter in reduced proportions appropriate to the smaller force structure, but approving no other new procurement of strategic or intra-theater airlift.

A major portion of the savings under this option comes from a reduction in ground forces. Since 1974, the U.S. Army has reorganized and expanded its total forces from 21 to 24 divisions by adding three active divisions.^{10/} The current Army force structure consists of 16 active divisions and eight National Guard and Reserve Divisions. The equivalent of five divisions is permanently stationed in the V and VII corps areas. As discussed earlier, these forces appear to have significantly greater capa-

^{10/} For a fuller discussion of the U.S. Army force structure and the cost of equipping and maintaining the three additional divisions, see Congressional Budget Office, U.S. Army Force Design: Alternatives for Fiscal Years 1977-1981, Staff Working Paper (July 16, 1976).

bilities to defend their sectors than do allied forces. The equivalent of two more U.S. divisions that have their equipment prepositioned in southern Germany is held available in the United States for immediate deployment. The remaining 17 divisions are available in the United States for deployment to Germany. These reinforcements might well be used not to support the U.S. V and VII corps, but to support the allied corps in northern Germany that are expected to be more hard-pressed. The discrepancies between U.S. and allied forces are particularly sharp in war reserves and other elements related to a sustained war effort. As the war progressed, it would seem increasingly likely that further U.S. reinforcement divisions would be allocated not to support the V and VII corps, but to assist in the defense of allied corps sectors. If, therefore, the objective of U.S. force planning were held to those requirements that seemed appropriate to maintaining only U.S. corps areas, there would appear to be little value in increasing the number of later-deploying divisions available in the United States for reinforcement in Europe. Accordingly, under this option there would be no need for the addition of three more Army divisions. U.S. ground forces could be maintained at their former level of 21 divisions; the equivalent of three divisions (two light and one mechanized division in proportion to the overall force structure of roughly a 2:1 ratio of heavy to light armored divisions) could be removed from the force. Resulting operations and maintenance savings against the five-year program would be approximately \$4.6 billion.

Planned procurement of new ground forces equipment would be approved in numbers reduced proportionately to the smaller force size. All major new firepower procurement—including the XM-1 tank—would be approved in relation to this smaller requirement. This would mean only a few production cuts within the five-year period—but substantially more beyond fiscal year 1983. Purchases of ammunition and other war reserves would also be reduced in accordance with the smaller force structure. This curtailment of war reserves would bring a savings of approximately \$1.6 billion.

In air defense, similar savings would be realized by restricting procurement of short-range air defense systems to those appropriate to this reduced ground force. Smaller purchases would lower these operating and procurement costs over the next five years; the major savings from this would, however, be realized from limits on production planned beyond the next five years. Much greater savings would be derived from a reduction in the planned purchases of fighter aircraft. These aircraft are under the command of Allied Air Forces Central Europe and would be

deployed to whatever areas of the Central Region were deemed by the command to be the most hard-pressed. As discussed earlier, those areas are most likely to be in the allied sectors. Moreover, the United States now provides proportionately more air defense aircraft than any other alliance member; one-third of the aircraft stationed in the Central Region are provided by the United States, and more than one-half of those which would be deployed after mobilization would be U.S. aircraft. Under a policy of designing U.S. defenses primarily for the needs of the U.S. corps areas, it would be appropriate to leave major enlargements and modernizations of alliance fighter forces to the European allies. Accordingly, under this option the United States would procure sufficient new fighter aircraft to provide a total of five wings of F-15s and eleven wings of F-16s. This reduction by one wing each would save \$2.5 billion against the five-year defense program.

The greatest savings under this program would, however, come in the logistics area. Because of the reduced force structure and because of the focus on the V and VII corps areas, this option envisions fewer ground forces to be moved to Europe, fewer to be moved within the European theater, and a smaller area of maneuver. Accordingly, the demands upon U.S strategic and tactical airlift would be curtailed. Although current modifications and programs underway would be continued, no new procurement would be approved. Denying funds for ATCA (\$4.5 billion), CRAF (\$0.015 billion), and the AMST transport (\$3.3 billion) would save a total of \$7.8 billion in procurement expenditures over the next five years. The UMTAS transport helicopter would be purchased as a modernization of current capabilities but in reduced numbers appropriate to the smaller force structure. This limited procurement would save \$0.3 billion from the current five-year program.

Such savings would be justified if the Congress were willing to limit new expenditures to those necessary to modernize basic U.S. ground and air forces in Europe. The Congress would be refusing to finance expansions of ground and air forces which would increase U.S. capabilities for supplementing or for reinforcing allied defenses. The United States would, then, be indicating to Western European allies that they must bear the responsibilities for building comparable defenses within their own sectors of the Central Region and in alliance air defenses. To the degree that this policy might stimulate greater efforts by Western Europeans, it may be seen as a means of enhancing solidarity of the alliance. The United States would be avoiding an enlargement not only of its forces, but of its responsibilities in NATO.

The United States would, however, be continuing to modernize and improve its ground and air forces. The capabilities of these forces would, in fact, be substantially greater than those only several years ago. Under this option, the United States would have more modern and sophisticated weapons, greater inventories of war reserve supplies, two additional fighter aircraft wings, and the same number of ground force divisons as in fiscal year 1974. For those who argue that the United States should not further increase its contributions to Western European defense without greater allied participation, this policy might be seen as a desirable option for U.S. NATO forces.

What this policy does not offer, however, is assurances that overall NATO defense would, in fact, be strengthened significantly. Although U.S. forces would themselves be improved, they would not acquire substantially greater capabilities for supplementing or reinforcing allied defenses. As discussed above, however, the greatest weaknesses are in allied forces defending the north of Germany. For NATO as a whole, the most important improvements are those which would strengthen or reinforce these allied ground and air forces. Under this option, the United States, as one member of the alliance, would not try unilaterally to strengthen NATO defense, but would leave the initiative to the Western European governments. There is, of course, no way to ensure that force improvement initiatives by the allies would result from this restraint in U.S. spending. If they did not, the current imbalance between NORTHAG and CENTAG would persist.